



**TABLE OF CONTENTS  
FOR  
TECHNOLOGY TRANSFER AND RESEARCH COMMITTEE**

**Committee Meeting: 2/13/2013**

**Board Meeting: 2/14/2013**  
Austin, Texas

*James D. Dannenbaum, Chairman*  
*R. Steven Hicks, Vice Chairman*  
*Alex M. Cranberg*  
*Printice L. Gary*  
*Brenda Pejovich*

	<b>Committee Meeting</b>	<b>Board Meeting</b>	<b>Page</b>
<b>Convene</b>	3:30 p.m. <i>Chairman Dannenbaum</i>		
1. <b>U. T. System: Report on a backtesting model for the U. T. Horizon Fund</b>	3:30 p.m. <b>Report/Discussion</b> <i>Mr. Burgdorf</i> <i>Mr. Allinson</i>	Not on Agenda	<b>344</b>
2. <b>U. T. System: Allocation of \$12.5 million of Available University Funds for the U. T. Horizon Fund</b>	4:00 p.m. <b>Action</b> <i>Mr. Burgdorf</i> <i>Mr. Allinson</i>	<b>Action</b>	<b>365</b>
3. <b>U. T. System: Report on pending federal sequestration and funding following fiscal-cliff deal</b>	4:05 p.m. <b>Report/Discussion</b> <i>Mr. Shute</i>	Not on Agenda	<b>371</b>
4. <b>U. T. System: Report on federal funding for research</b>	4:20 p.m. <b>Report/Discussion</b> <i>Dr. Hurm</i>	Not on Agenda	<b>372</b>
5. <b>U. T. Austin: Report on M87, Inc., a U. T. Austin start-up to improve wireless communications technology</b>	4:35 p.m. <b>Report/Discussion</b> <i>Dr. Robert Metcalfe and</i> <i>Dr. Sriram Vishwanath,</i> <i>U. T. Austin</i>	Not on Agenda	<b>379</b>
<b>Adjourn</b>	5:00 p.m.		

1. **U. T. System: Report on a backtesting model for the U. T. Horizon Fund**

REPORT

Vice Chancellor and General Counsel Burgdorf and Executive Director Allinson will report on a backtesting model for the U. T. Horizon Fund (Fund). The backtesting model applies strategy and analytical methods to analyze historical and present data for the years 2002-2012 to determine the theoretical performance of the Fund had it been in existence and co-investing in U. T. start-ups during that time period.

The presentation of the backtesting model is set forth on the following pages.



## Backtesting Model (2002-2012)

Barry Burgdorf, Vice Chancellor and General Counsel

Bryan Allinson, Executive Director of Technology Commercialization

U. T. System Board of Regents' Meeting  
Technology Transfer and Research Committee  
February 2013



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## Purpose

- 10-year “backtesting model” for the U. T. Horizon Fund (Fund)
- What metrics, including returns, would have resulted if the Fund had been established in 2002?
- Previously requested by the U. T. System Board of Regents’ Technology Transfer and Research Committee



## Goal

- To determine what investment activity could have been observed if the Fund automatically co-invested when presented the opportunity to do so starting in 2002



# Forward-Looking Statement

Forward-looking statements generally include words such as ‘may’, ‘could’, ‘will’, ‘expect’, ‘intend’, ‘estimate’, ‘anticipate’, ‘believe’, ‘plan’, ‘seek’, ‘continue’, ‘project’, ‘should’, ‘probability’, ‘risk’, ‘value-at-risk’, ‘target’, ‘goal’, ‘objective’, ‘endeavor’, ‘outlook’, ‘optimistic’, and ‘prospects’, or similar expressions or variations on such expressions to identify forward-looking statements.

Data presented for the backtesting model covers a period of time ranging from 2002 to 2012 and is theoretical not actual because the Fund did not exist as a strategic venture fund for the entire duration of the time period and, as such, is based on information, both known and unknown, collected from sources such as public databanks, and includes certain assumptions based on predictions where no data existed and information that may not have otherwise been collected due to the fact that the Fund did not exist during the time period. Data generated from the backtesting model covering capital investments, returns, equity marked to market, industry segments, exits, field, or any other data is subject to such information, both known and unknown.

Projecting results forward from the backtesting model to the future, including forward-looking investments, returns, equity marked to market, industry segments, exits, fields, or any other forward-looking statement, includes unknown risks and uncertainty that could cause actual results, performance, or events to differ materially, both higher or lower, from those expressed or implied in such statements as well as from output created from observations of the backtesting model.



# Profile: University & health strategic venture funds



WARF

Univ. of Wisconsin



New York University



Stanford



Univ. of Michigan



Partners Healthcare



Cleveland Clinic



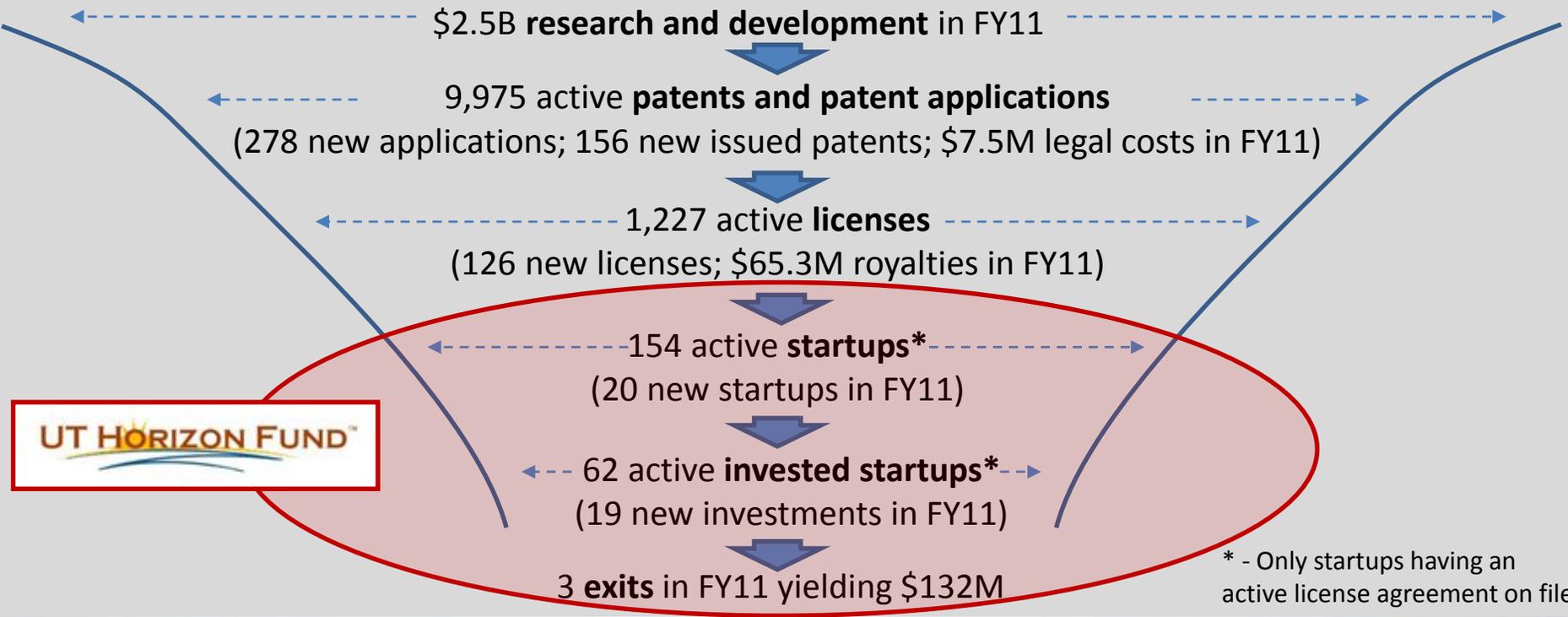
Kaiser Permanente



# Profile: Origination of university ventures

Meeting of the U. T. System Board of Regents - Technology Transfer and Research Committee

350



# Profile: Volcano Corporation



PRECISION GUIDED THERAPY

(VOLC: NASDAQ GS)

- Summary: Formed in 2000 out of U. T. Health Science Center - Houston technology on the thermal detection of vulnerable atherosclerotic plaques, Volcano designs, develops, manufacturers, and commercializes intravascular ultrasound (IVUS) and fractional flow reserve (FFR) products used in diagnosis and treatment of structural heart disease.
- Financials: Initial public offering (IPO) in June 2007 with one-year post IPO share price of \$20; today's market cap: \$1.4 billion; 52-week high/low: \$30.59 - \$22.22

<http://investing.businessweek.com/research/stocks/snapshot/snapshot.asp?ticker=VOLC>; accessed 1/11/13



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## Model

- Review every known deal from 2002 to 2012 covering an active start-up company having licensed a U. T.-owned technology
- Each co-investment deal is matched to an investment by at least one venture capital firm, strategic investor, or angel investor
- Diversification metrics include company vintage, deal vintage, originating institution, company exit, and expected return
- Utilize a 10-year cost of capital of 7.05 percent (UTIMCO) for handling of cash and determination of present value



## Qualifying Assumptions

- This is a model and is not actual
- Does not represent with certainty what would have happened, but rather scenarios based on information and, where no information exists, assumptions
- Because the Fund did not exist during this period, only limited information on deals is available, and therefore assumptions were made on deals covering deal terms and positions of Fund investments



## Qualifying Assumptions (cont.)

- Only known exits are modeled: unknown (private/ confidential) exits are not modeled
  - If all exits were known, then cash returns would likely be higher than what the model predicts
- Only known bankruptcies are modeled: unknown (private/confidential) exits are not modeled
  - If all bankruptcies were known, then equity marked to market would likely be lower than what the model predicts



# Summary of Backtesting Model Metrics

	Probable Case	Best Case
Companies involved with deals	72	73
Number of exits for U. T. start-up companies	12	13
Number of co-investment deals for the Fund	116	118
Cash invested by the Fund (\$M)	159.5	166.1
Cash returned to the Fund (\$M)	332.8	470.4
Multiple	2.1	2.8
Internal Rate of Return	54%	167%
Portfolio Value — Net present value (7.05%) of cash returns plus equity mark to market minus cost of capital (\$M)	394.7	618.9
Gains Value — Net present value (7.05%) of cash returns minus cost of capital (\$M)	226.0	450.2



## Analysis of Backtesting Model

- 142 known start-ups; 72 discrete companies raised \$1,223 million
- 13 known start-ups that were acquired or initial public offering (IPO) valued at \$4,188.3 million
- 4 known start-ups that have entered bankruptcy reducing equity marked to market to zero
- 125 start-ups considered “Active”
  - Known to be active; also includes no known information on exit nor bankruptcy
  - Note: It is expected that there may be some private exits and bankruptcies not known within this group



## Probable Case

- Invest \$159.5 million
- Return \$332.8 million in cash and \$168.7 million in equity marked to market
- 2.1 multiple from 12 exits
- Present value of cash returns minus cost of capital is \$226 million

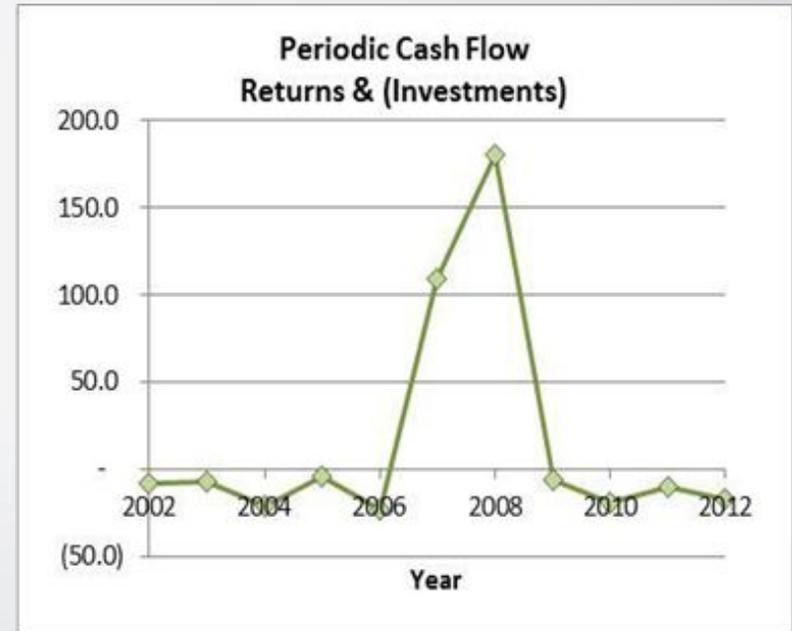
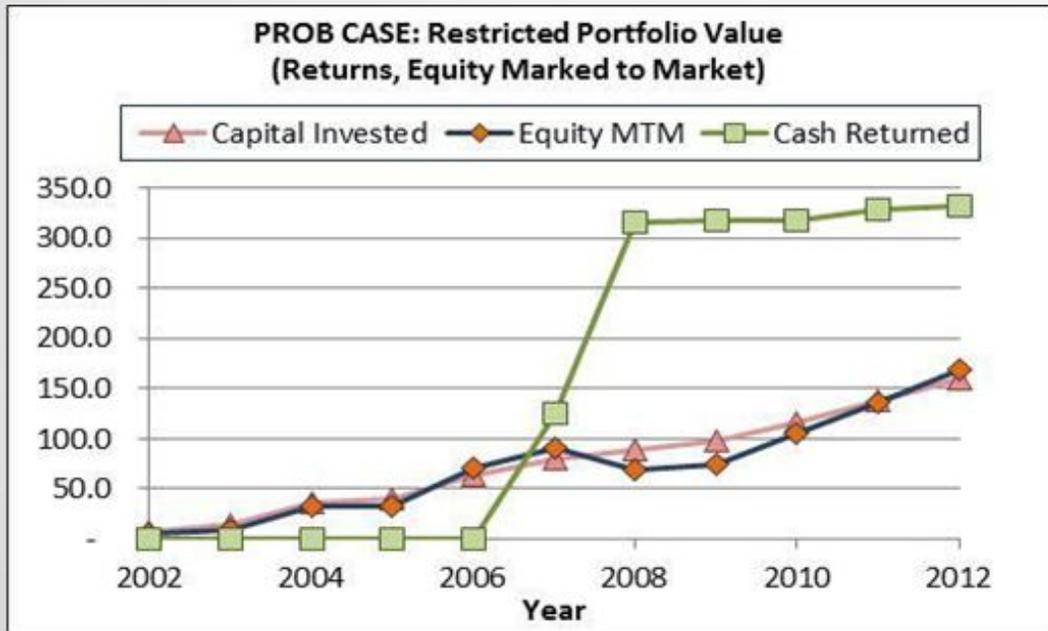


## Best Case

- Invest \$166.1 million
- Return \$470.4 million in cash and \$168.7 million in equity marked to market
- 2.8 multiple from 13 exits
- Present value of cash returns minus cost of capital is \$450.2 million
- (Same as Probable Case but assumes the Fund would have made additional investments up to 3 years prior to 2002)



# Probable Case (\$M)

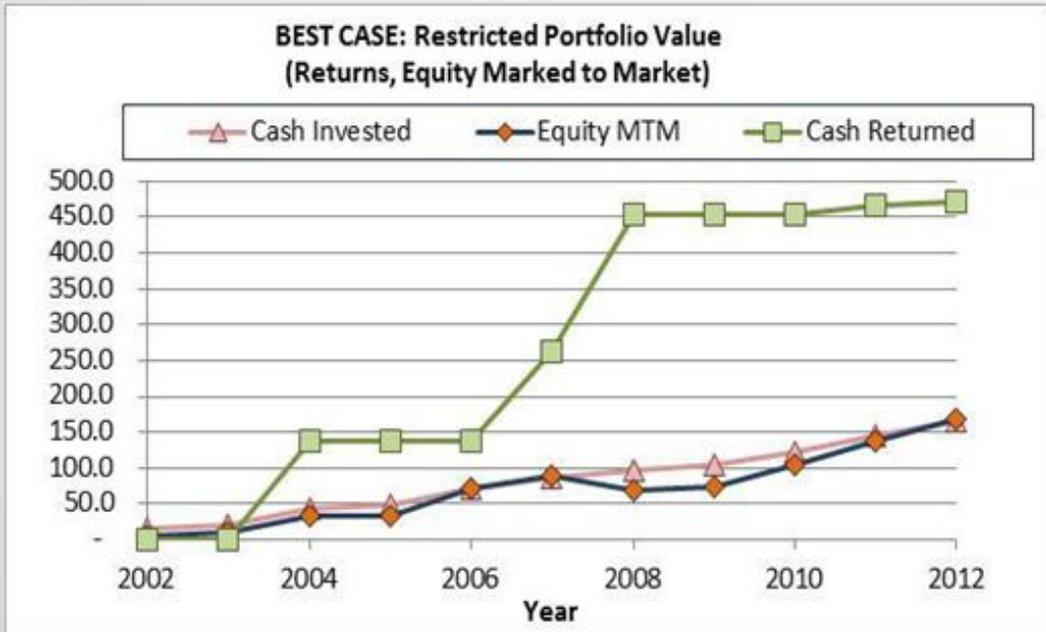


359

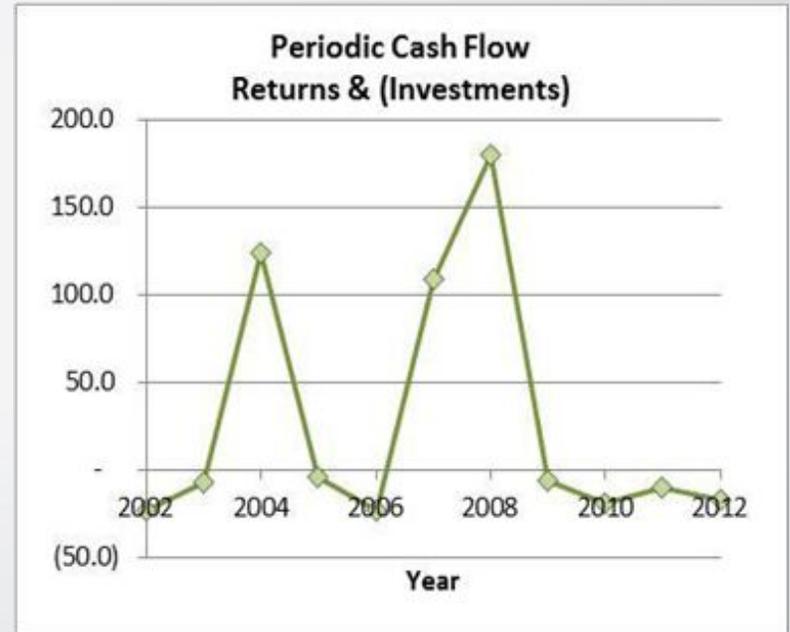


# Best Case (\$M)

**BEST CASE: Restricted Portfolio Value  
(Returns, Equity Marked to Market)**



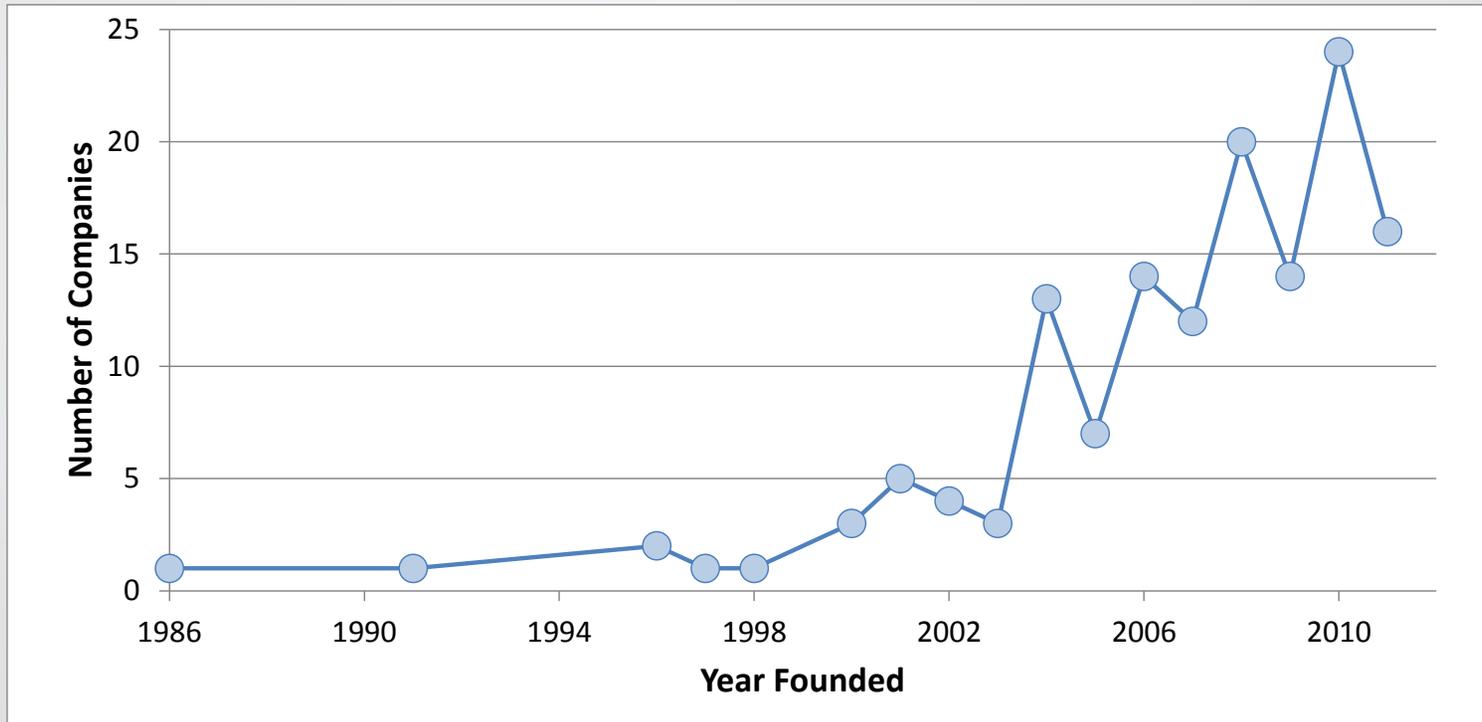
**Periodic Cash Flow  
Returns & (Investments)**



360



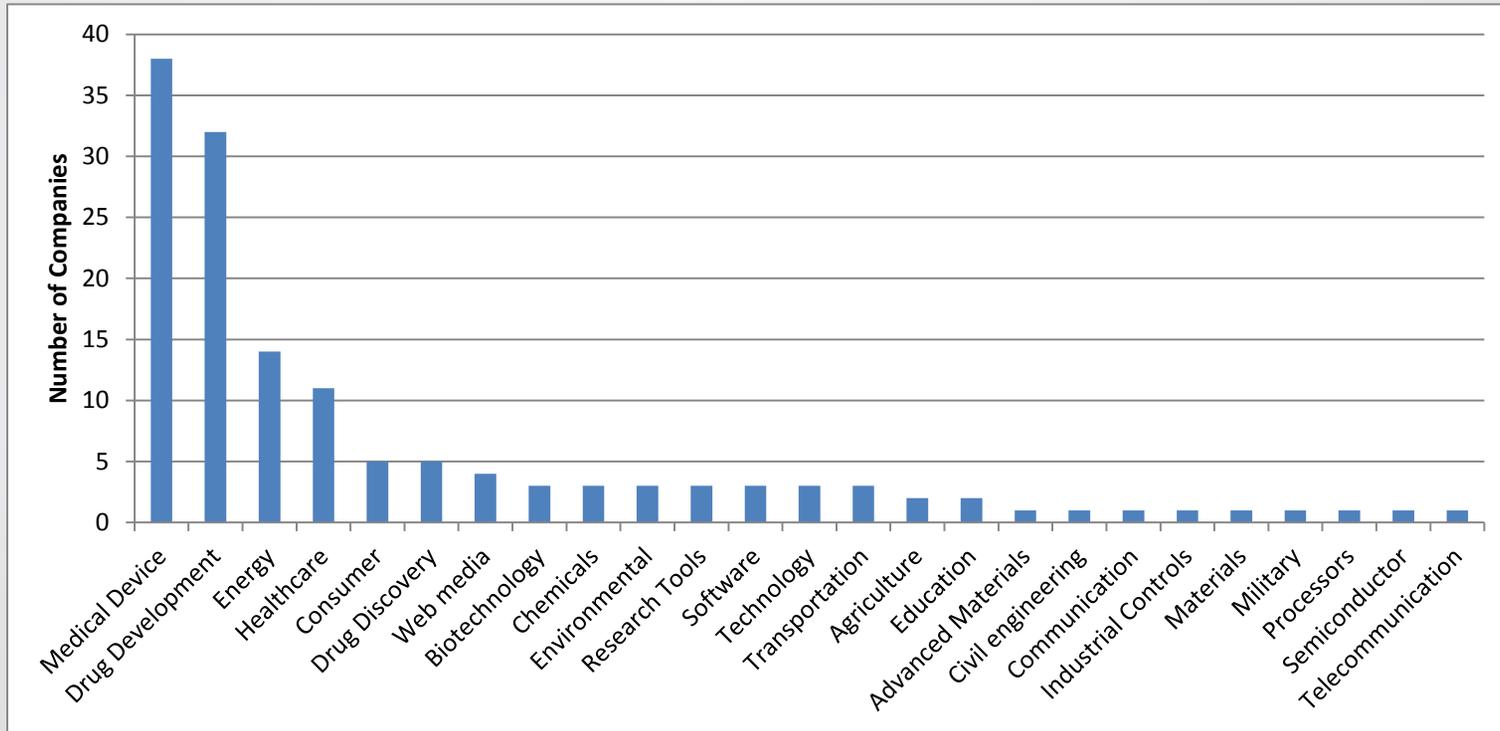
# Companies by Vintage



361



# Companies by Segment



362



## Benefits U. T. System would have received if the Fund existed from 2002-2012

- Provided a significant return on investment to U. T. System
  - Participate in \$226 million financial gains, 54 percent internal rate of return
  - Create a portfolio of start-ups, including associated equity marked to market
- Enabled a focused center of excellence in ventures across the entire U. T. System
  - Assist U. T. System institutions in developing a higher level of awareness relating to equity and exit value of licensed intellectual property
  - Enhance venture development and monitoring activities of U. T. System institutions
  - Support complimentary patent and licensing core competencies at U. T. System institutions
- Enabled U. T. System to better access associated entrepreneurial talent



## Conclusion

- Based on these findings, we recommend that the Board recapitalize the Fund with “Phase II funding” of \$12.5 million per year over the next four years (2013-2016) reauthorized annually
  - Focus on targeted investments into U. T. start-ups
  - Optimize performance (returns)
  - Feed the pipeline (enable future deal flow)
  - Engage entrepreneurial talent in fields of high density such as medical device, drug development, and energy, etc.
  - Compliment existing technology commercialization activities at U. T. institutions



**2. U. T. System: Allocation of \$12.5 million of Available University Funds for the U. T. Horizon Fund**

**RECOMMENDATION**

The Chancellor concurs in the recommendation of the Executive Vice Chancellor for Business Affairs and the Vice Chancellor and General Counsel that the U. T. System Board of Regents approve and authorize \$12.5 million from Available University Funds (AUF) as the first allocation under a four-year plan to continue and enhance the goals of the U. T. Horizon Fund (Fund). Each additional \$12.5 million allocation will be subject to annual approval and authorization by the Board upon receipt of a satisfactory report of activities undertaken as a result of the previous year's allocation. The funds will be utilized as follows:

- a. \$10 million for Fund investments; and
- b. \$2.5 million for associated services to be provided centrally by the Office of Technology Commercialization under the oversight of the Office of General Counsel and the Office of Business Affairs.

Subject to approval of the Board's standing committee on Technology Transfer and Research and the Chancellor, the Office of Technology Commercialization shall be authorized to exceed the \$10 million Fund allocation by up to \$2 million each fiscal year should deal flow exceed expectations during that fiscal year.

**BACKGROUND INFORMATION**

The Fund was approved by the Board of Regents on August 25, 2011, and serves as a strategic investment fund for the U. T. System. The Fund's goals are to improve commercialization of U. T. System institution technologies, and improve sustainability through a positive return on investment. Phase I of the Fund was capitalized with \$10 million of AUF. As of January 2013, \$9.8 million of funds have been deployed, are in process, or are being held as reserve funding for follow-on investments, representing 98% of the total funding allocated from the August 2011 approval.

The Fund's Existing Ventures funding program co-invests with syndicate investors to continue equity participation all the way through to commercialization. By reducing equity dilution, a contributor to eroding U. T. System's equity value, U. T. System can increase its return on investment both in terms of delivering real products and services beneficial to society, as well as providing financial return. Following a six-month ramp-up period designed to establish inter-institutional procedures, \$3.9 million has been invested through the Fund's Existing Ventures funding program from August 2012 through January 2013, with another \$0.5 million in process for a total of \$4.4 million deployed along with another \$4.4 million reserved for follow-on investments, totaling \$8.8 million.

The Fund's New Ventures funding program focuses on addressing the biggest bottleneck at the earliest stages of commercialization -- access to entrepreneurial talent. Seasoned entrepreneurs are necessary to help develop deep and nuanced business planning with U. T. System institutions' startups and to network with industry partners critical for growth and development,

regulatory approval, and other activities. To date, \$0.5 million is in process to be invested through the New Ventures funding program with another \$0.5 million in reserves, totaling \$1.0 million.

An executive summary of the Fund's portfolio is attached.

U. T. Horizon Fund Portfolio  
Executive Summary



**Apollo Endosurgery, Inc. (a U. T. Medical Branch – Galveston startup)**

Apollo Endosurgery, Inc. was founded upon the initial work of the Apollo Group, a group of five universities: U. T. Medical Branch - Galveston, the Mayo Clinic, Johns Hopkins University, Medical University of South Carolina, and Chinese University-Hong Kong. The specific focus of the Apollo Group was the use of long, flexible instruments deployed through a natural orifice to diagnose and potentially treat gastrointestinal disorders.

In 2006, the group founded Apollo Endosurgery, Inc., to revolutionize patient care through the development of endoscopic surgery, which is emerging from the convergence of laparoscopic surgery and therapeutic gastroenterology. Flexible surgery minimizes the trauma of surgical access by taking advantage of natural orifices to deliver surgical tools to targeted areas.

Apollo has developed a new class of flexible surgical tools, called SuMO™, to enable surgeons and gastroenterologists to offer less invasive treatment options for a variety of gastrointestinal disorders.

In 2012, Apollo Endosurgery received U.S. Food and Drug Administration clearance for its endoscopic tissue access and resection system. The system assists surgeons in removing large, flat precancerous gastrointestinal lesions and polyps during endoscopy procedures.

In October 2012, Apollo Endosurgery was named to the “Fierce 15” list of top private medical device companies of the same year by FierceMedicalDevices editors. The announcement came during AdvaMed 2012, a medical device industry conference held in Boston, MA.

The U. T. Horizon Fund is an investor of Apollo Endosurgery under the Existing Ventures funding program.



**Cardiovate, Inc. (a U. T. San Antonio startup)**

In 2012, U. T. San Antonio student Jordan Kaufmann, Ph.D. (now alumnus), U. T. San Antonio College of Engineering Dean Mauli Agrawal, and U. T. Health Science Center - San Antonio cardiologist Steven Bailey, M.D. helped launch Cardiovate, a technology startup that will offer a new and much-needed cardiovascular stent-graft to prevent aneurysm leakage following cardiovascular surgeries.

The group developed the unique stent-graft as part of Dr. Kaufmann's doctoral research in biomedical engineering in the U. T. San Antonio College of Engineering and U. T. Health Science Center - San Antonio Department of Cardiology in the School of Medicine.

The technology will be developed to better serve the \$507 million cardiovascular stent-graft market.

Cardiovate is the winner of the 2012 U. T. Horizon Fund Student Investment Competition, part of the New Ventures funding program of the U. T. Horizon Fund.



**Cerevast Therapeutics, Inc. (a U. T. Health Science Center - Houston startup)**

Cerevast Therapeutics, Inc. is a medical technology company with primary emphasis in the field of SonoLysis for the treatment of acute ischemic stroke and other vascular disorders. This non-invasive treatment is administered with Cerevast's proprietary ultrasonic headframe called the ClotBust-ER™, an operator independent device that can be rapidly and easily deployed by virtually any emergency room staff to safely administer the ultrasound energy for SonoLysis therapy.

Approximately 795,000 strokes occur in the United States each year, representing the third leading cause of death in the United States behind cancer and cardiovascular disease. Approximately 87 percent of all strokes are ischemic in nature, meaning they are the result of a blood clot forming in one or more of the cerebral arteries. Activase® (Alteplase, recombinant tissue plasminogen activator or tPA) is currently the only drug approved for the treatment of ischemic stroke. Clinical studies have demonstrated that when ultrasound energy is applied during conventional intravenous tPA thrombolytic therapy, there is a dramatic improvement in the ability to dissolve blood clots and restore blood flow to the ischemic regions of the brain.

SonoLysis is the result of ultrasound pressure waves traveling through tissue that induce a mechanical force, which in turn causes the tissues to displace or strain.

In December 2011, Cerevast completed its stroke treatment portion, Phase II, of the Combined Lysis of Thrombus in Brain Ischemia with Transcranial Ultrasound in Brain Ischemia (CLOTBUST-HF), a National Institutes of Health-funded Phase I/II trial. This phase of the study consisted of 20 ischemic stroke patients who were treated with two hours of continuous ultrasound insonation using the Cerevast Clotbust-ERTM device while undergoing concomitant thrombolytic therapy.

In December 2011, Cerevast received CE mark clearance of SonoLysis System, providing approval to market in Europe.

The U. T. Horizon Fund is an investor of Cerevast Therapeutics under the Existing Ventures funding program.



#### **FibeRio Technology Corporation (a U. T. Pan American startup)**

FibeRio Technology Corporation focuses on incorporating proprietary Forcespinning™ technology into equipment and manufacturing processes. Forcespinning® Technology combines novel equipment and processes to enable more versatile and cost-effective methods for making polymeric nanofibers and metallic nanowires. Forcespinning® solves problems of prior nanofiber production such as either using less or no solvent at all, and is a more cost effective and continuous process.

The application of nanofiber technology to commercial products includes filtration, textiles, tissue engineering, drug delivery, energy, cosmetics, and other applications. As these technologies transition from research to commercial applications, success is dependent on the availability of low cost, safe, and effective product manufacturing.

In June 2011, FibeRio won an R&D 100 Award from R&D Magazine for its development and launch of the Cyclone™ L-1000 series of nanofiber production machinery. The annual R&D 100 Awards recognize the 100 most technologically significant products introduced into the marketplace over that year.

In June 2012, FibeRio was spotlighted in a report from the Partnership for a New American Economy. The organization, whose members include hundreds of mayors and business leaders from across the country, produced the report entitled "Patent Pending: How immigrants are reinventing the American economy." U. T. Pan American faculty and FibeRio co-founder Karen Lozano, Ph.D., was also spotlighted in the report.

The U. T. Horizon Fund is an investor of FibeRio under the Existing Ventures funding program.



**Latakoo Inc. (a U. T. San Antonio startup)**

Latakoo, Inc. is a web media startup focused on sharing video files between parties in a data and time efficient manner. The company is focused on servicing the media and business community to improve productivity. Latakoo employs a one-click utility to shrink and convey large HD and SD video files in minutes instead of hours without compromising quality. Latakoo's online platform is focused on television media, public relations agencies, and numerous large corporate enterprises.

In 2012, Latakoo partnered with NBC Universal and Box.com to help commercialize its technology.

The U. T. Horizon Fund is an investor of Latakoo under the Existing Ventures funding program.



**Rapamycin Holdings, Inc. (a U. T. Health Science Center - San Antonio startup)**

Rapamycin Holdings, Inc. licenses rapamycin-related intellectual property developed at the U. T. Health Science Center - San Antonio. Rapamycin, a drug federally approved to suppress organ rejection, continues to be studied for its potential to slow the aging process and its efficacy in treating age-related diseases.

The U. T. Horizon Fund is an investor of Rapamycin Holdings under the Existing Ventures funding program.

3. **U. T. System: Report on pending federal sequestration and funding following fiscal-cliff deal**

REPORT

Vice Chancellor Shute will report on the current fiscal situation at the federal level, focusing on the pending sequestration of federal accounts and the impact to higher education of the tax deal reached by Congress and the Administration at the end of 2012.

4. **U. T. System: Report on federal funding for research**

REPORT

Vice Chancellor Hurn will report on federal funding for research, focusing on projected effects of the federal budget sequestration on university research. Dr. Hurn's presentation is set forth on the following pages.

# Federal Funding for Research

Patricia Hurn, Ph.D.

Vice Chancellor for Research and Innovation

U. T. System Board of Regents' Meeting  
Technology Transfer and Research Committee  
February 2013

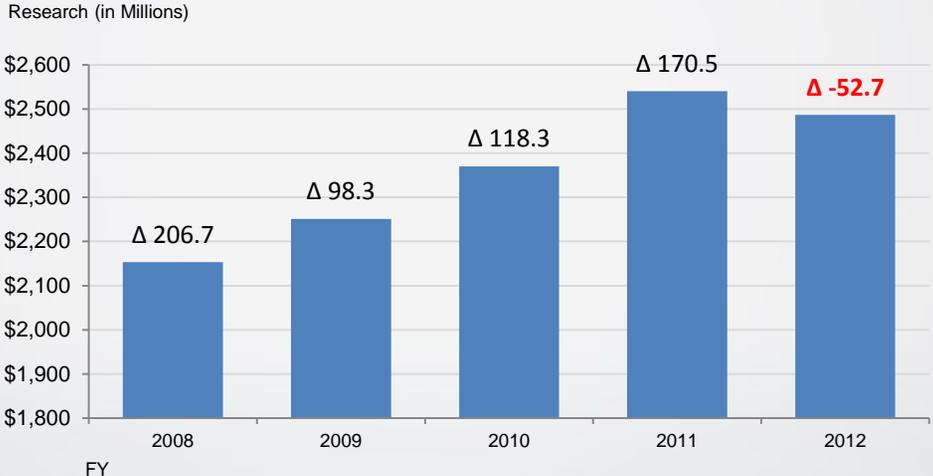


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# Total research expenditures decrease in 2012, largely due to reduced federal funding

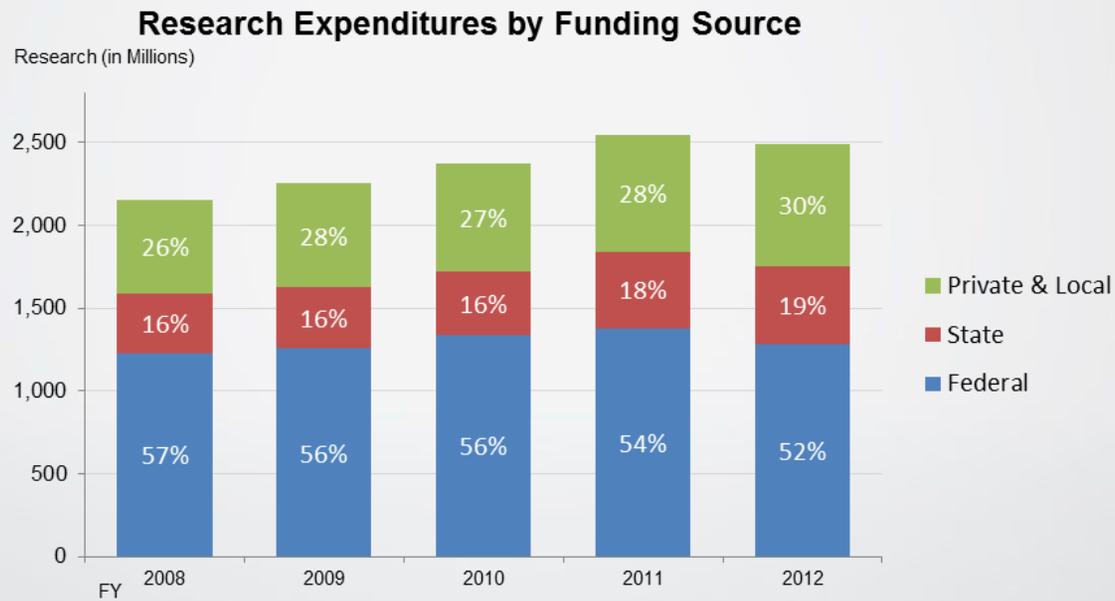
### Total Research Expenditures



Column data labels represent the gains/losses (in millions) in funding from all sources (federal, state, private, and local ) from the previous FY.

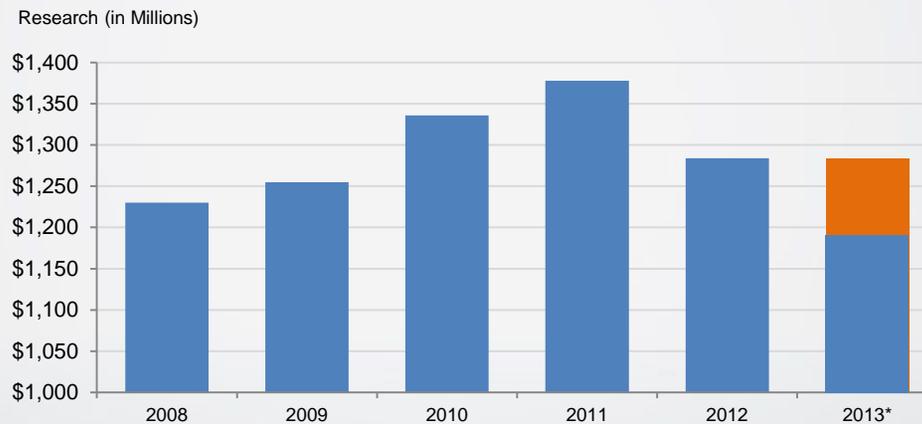


# Subtle shifts in funding sources over time



# Projected 2013 U. T. System federal funding assuming 8.2% reduction from sequestration

## Federal Funding of Research Expenditures

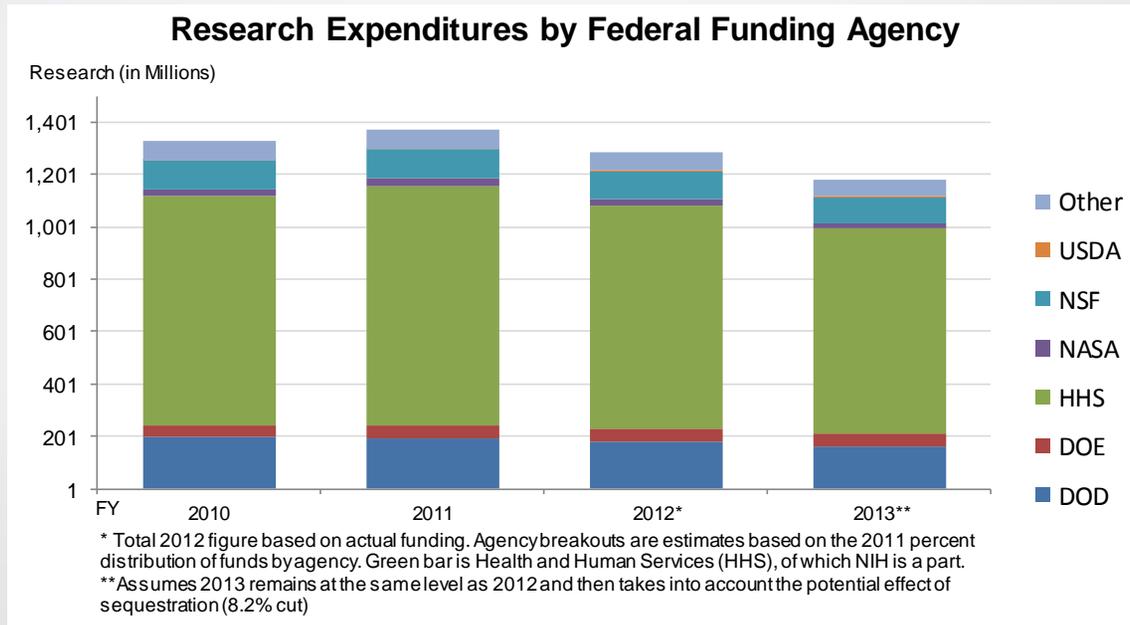


FY

\*If federal funding is assumed to remain the same for FY 2013 as for FY 2012, then sequestration (8.2 cut) would produce a projected **\$105 million dollar reduction in federal research expenditures (orange)**.



# Largest projected impact for NIH funded research, all institutions

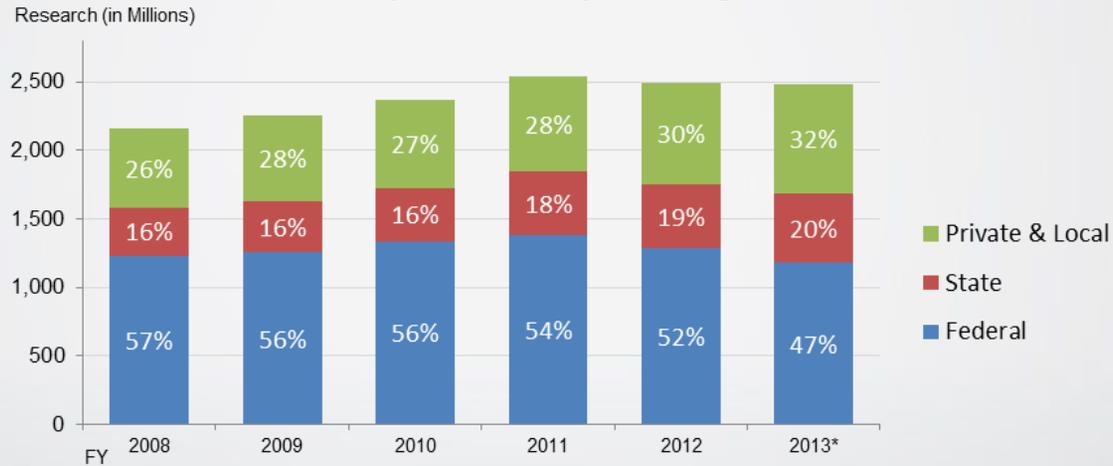


377



# Non-federal funding must replace federal dollars if research expenditures are to continue at high level

## Research Expenditures by Funding Source



\*The 2012-13 figure is an estimated projection based on the average % increase of the previous 5 years for state and private/local funding. For federal funding, it assumes levels remain the same as in the previous year and then accounts for sequestration.



5. **U. T. Austin: Report on M87, Inc., a U. T. Austin start-up to improve wireless communications technology**

REPORT

Dr. Robert Metcalfe, Director of the Cockrell School of Engineering at U. T. Austin, will introduce Dr. Sriram Vishwanath, Associate Professor in the Department of Electrical and Computer Engineering, for a report on M87, Inc., a U. T. Austin start-up to improve wireless communications technology.

M87 was formed to commercialize technology developed in the Department of Electrical and Computer Engineering. M87's management team was recruited in October 2012, and M87 was granted an exclusive, worldwide license from U. T. Austin in November 2012. U. T. Austin owns 5% of M87. The U. T. Horizon Fund is investing \$500,000 in the company's second tranche of a \$1 million seed financing currently scheduled to close on January 25, 2013. This funding will be used to hire additional engineers and file for additional patents in key countries around the world.

M87 is developing software solutions to address spectrum capacity constraints in the wireless communications industry. Wireless data is an \$80 billion market in the United States. Current U.S. providers (e.g., AT&T, Verizon) are experiencing acute capacity constraints in key markets such as New York City. M87's solutions and related intellectual property bring a unique software-only solution to a market traditionally addressed by multibillion dollar capital expenditures. Field trials with carriers are expected to commence in the third quarter of 2013. The company anticipates raising an additional round of equity capital prior to commencing field trials.